

CRS Report for Congress

The America COMPETES Act and the FY2009 Budget

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The America COMPETES Act and the FY2009 Budget

Summary

The America COMPETES Act (P.L. 110-69) responds to concerns that the United States may not be able to compete economically with other nations in the future due to insufficient investment today in science and engineering research and in science, technology, engineering, and mathematics (STEM) education. A similar concern led President Bush to announce the American Competitiveness Initiative (ACI) in January 2006.

FY2008 appropriations met neither the Administration's ACI target nor America COMPETES Act authorized levels. An issue for Congress is whether FY2009 appropriations will. The President's Office of Science and Technology Policy reports that the FY2009 budget request includes funding for America COMPETES Act initiatives at 88% of the FY2009 authorization level. In June 2008, the House and Senate approved the Concurrent Budget Resolution Conference Report (S.Con.Res. 70), which provides a sense of the Congress on the America COMPETES Act, stating "the Congress should provide sufficient funding so that our Nation may continue to be the world leader in education, innovation and economic growth." For FY2009, the federal agencies that manage America COMPETES Act programs are funded through an interim continuing resolution until March 6, 2009. Funding for the remainder of FY2009 and all of FY2010 remains to be determined.

The act authorizes increases in the nation's investment in science and engineering research at the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) laboratories, and the Department of Energy (DOE) Office of Science. Both the Senate and House Committees on Appropriations recommended funding for NSF authorized at \$7.3 billion, while \$6.9 billion was requested by the Administration. For NIST, both the Senate and House committees provided funding for programs the Administration requested eliminated, the Technology Innovation Program (TIP), and the Manufacturing Extension Partnership (MEP). The DOE Office of Science authorized level is \$5.2 billion. The President requested \$4.7 billion. The Senate committee reported \$4.6 billion, and the House committee reported \$4.8 billion. The act also establishes within DOE the Advanced Research Projects Agency-Energy (ARPA-E), designed to support transformational energy technology research projects. The President's FY2009 budget does not request appropriations for ARPA-E. The House committee recommended \$15 million for ARPA-E, while the Senate committee did not include any funding in its report.

In STEM education, the act authorizes Department of Education (ED) and NSF programs to encourage STEM degree majors and professionals to become K-12 STEM teachers. At ED, the Administration requests the elimination of the act's Teachers for a Competitive Tomorrow program authorized at 151.2 million. The Senate committee included \$2 million for this program, while the House subcommittee did not fund the program. At NSF, the America COMPETES Act increased the authorization level for the Robert Noyce Teacher Scholarship program to 115.0 million. The Administration requested funding of \$11.6 million for this program. The Senate committee recommended \$55 million in its report, and the House committee \$50 million.

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The America COMPETES Act and the FY2009 Budget

The Administration and Congress agree on the need to invest in science and engineering research, and science, technology, engineering, and mathematics (STEM) education in order for the United States to be more competitive with other nations. Their priorities as to which programs to fund, and how much, however, are different.

When Congress passed the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (P.L. 110-69), known as the America COMPETES Act, in August 2007, much of the FY2008 appropriations debate had already taken place. As a consequence, FY2008 appropriations largely failed to address the new priorities enacted in the America COMPETES Act. The FY2009 budget cycle is the first time Congress has debated funding for America COMPETES Act programs from the beginning of the appropriations process.

The purpose of this report is to compare the President's FY2009 budget request to the FY2009 authorized levels provided by the America COMPETES Act. For more general information on the America COMPETES Act, see CRS Report RL34328, *America COMPETES Act: Programs, Funding, and Selected Issues*, by Deborah D. Stine.

Overview of the America COMPETES Act

The America COMPETES Act was a response to concerns that the United States may not be able to compete economically with other nations in the future. The act mainly addresses concerns about insufficient investment in science and engineering research; STEM education; and STEM workforce development. Similar concerns led President Bush to announce the related American Competitiveness Initiative (ACI) in January 2006.

The America COMPETES Act authorizes an increase in federal science and engineering research funding and support for kindergarten through postdoctoral education. The act also establishes the Advanced Research Projects Agency-Energy (ARPA-E)¹ and Discovery Science and Engineering Innovation Institutes.

¹ For more information on ARPA-E, see CRS Report RL34497, *Advanced Research Projects Agency - Energy (ARPA-E): Background, Status, and Selected Issues for Congress*, by Deborah D. Stine.

The act authorizes funding increases for the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) laboratories, and the Department of Energy (DOE) Office of Science through FY2010. The Administration's ACI also proposes increases in research funding for the three agencies, but at a lower rate of change.

The America COMPETES Act is an authorization act. New programs established by the act will not be initiated unless funded through subsequent appropriations. Similarly, increases in the authorization level of existing programs may or may not translate into increased funding.

Agency Programs and the America COMPETES Act

The following section discusses some of the America COMPETES Act programs in relation to the President's FY2009 budget submission.² The FY2009 request information is based on the FY2009 Congressional Budget Request documents from the DOE³ and the NSF.⁴ The ED FY2009 request information is based on the its Budget Summary.⁵ The NIST FY2009 request information is from the *Fiscal Year 2009 Budget of the U.S. Government*.⁶

National Institute of Standards and Technology

The mission of NIST, a laboratory of the Department of Commerce, is to increase the competitiveness of U.S. companies by supporting industrial development of precompetitive, generic technologies, diffusing government-developed technological advances, and providing measurement, calibration, and quality assurance techniques.⁷

² For information on the President's FY2009 budget, see CRS Report RL34448, *Federal Research and Development Funding: FY2009*, coordinated by John F. Sargent.

³ The DOE Budget Request is available at [<http://www.cfo.doe.gov/budget/09budget/Start.htm>]. Relevant detailed budget justification addressing science is available in volume 4 at [<http://www.cfo.doe.gov/budget/09budget/Content/Volumes/Volume4.pdf>]. The detailed budget justification addressing the nuclear energy educational programs that are part of the act is available in volume 3, p. 621 at [<http://www.cfo.doe.gov/budget/09budget/Content/Volumes/Volume3a.pdf>].

⁴ The NSF Budget Request is available at [<http://www.nsf.gov/about/budget/fy2009/toc.jsp>].

⁵ The ED Budget Summary is available at [<http://www.ed.gov/about/overview/budget/budget09/summary/index.html>]. The relevant sections are on elementary and secondary education at [<http://www.ed.gov/about/overview/budget/budget09/summary/edlite-section2a.html>], higher education programs at [<http://www.ed.gov/about/overview/budget/budget09/summary/edlite-section2e.html>], and programs proposed for elimination at [<http://www.ed.gov/about/overview/budget/budget09/summary/edlite-section3.html>].

⁶ See the NIST budget information in the Appendix on p. 228 at [<http://www.whitehouse.gov/omb/budget/fy2009/pdf/appendix/com.pdf>]

⁷ For more information on NIST, see CRS Report 95-30, *The National Institute of Standards* (continued...)

The America COMPETES Act authorizes NIST's Scientific and Technical Research and Services (STRS) and Industrial Technology Services (ITS) programs. The ITS includes the existing Hollings Manufacturing Extension Partnership (MEP) and a new Technology Innovation Program (TIP), which replaced a program with similar goals, the repealed Advanced Technology Program (ATP).⁸

The act authorizes \$541.9 million for STRS in FY2009; the President's FY2009 budget proposes \$535.0 million.⁹ The act authorizes \$131.5 million for TIP in FY2009, but the President's FY2009 budget proposes eliminating TIP, so its proposed budget is zero. For MEP, the act authorizes \$122.0 million in FY2009, while the President's FY2009 budget proposes \$4.0 million to end federal support for the program.

Department of Energy

The mission of DOE is to “advance the national, economic, and energy security of the United States; to promote scientific and technological innovation in support of that mission; and to ensure the environmental cleanup of the national nuclear weapons complex.”¹⁰ The DOE is the largest federal government supporter of basic physical sciences research. This research is conducted at its national laboratories as well as through its support of investigator-initiated, merit-reviewed, competitively selected awards, conducted primarily at universities.¹¹

The America COMPETES Act authorizes the establishment of the ARPA-E and the Discovery Science and Engineering Innovation Institutes within DOE. Based on the Defense Advanced Research Projects Agency (DARPA) model, ARPA-E is designed to support transformational energy technology research projects with the goal of enhancing the nation's economic and energy security.¹² Discovery Science

⁷ (...continued)

and Technology: *An Appropriations Overview*, by Wendy H. Schacht.

⁸ For additional information on ATP and TIP, see CRS Report 95-36, *The Advanced Technology Program*, and CRS Report RS22815, *The Technology Innovation Program*, both by Wendy H. Schacht. The report describes the similarities and differences between the two programs.

⁹ This includes almost \$9 million for the Baldrige National Quality Award Program. According to NIST, “The Baldrige Award is given by the President of the United States to businesses — manufacturing and service, small and large — and to education, health care and nonprofit organizations that apply and are judged to be outstanding in seven areas: leadership; strategic planning; customer and market focus; measurement, analysis, and knowledge management; human resource focus; process management; and results.” For more information, see [http://www.nist.gov/public_affairs/factsheet/baldfaqs.htm].

¹⁰ Department of Energy, “About DOE,” at [<http://www.energy.gov/about/index.htm>].

¹¹ Department of Energy, “Science and Technology,” at [<http://www.energy.gov/sciencetech/index.htm>].

¹² For more information on ARPA-E, see CRS Report RL34497, *Advanced Research Projects Agency - Energy (ARPA-E): Background, Status, and Selected Issues for Congress*, (continued...)

and Engineering Innovation Institutes would be multidisciplinary research institutes located at DOE national laboratories that would apply fundamental science and engineering discoveries to technological innovations. Up to three institutes may be created each fiscal year. The DOE FY2009 budget request does not propose funding for either ARPA-E or the Discovery Science and Engineering Innovation Institutes.

Dr. John H. Marburger, director of the White House Office of Science and Technology Policy testified:

[T]he Budget does not request funding for the Advanced Research Projects Agency (ARPA-E) or new math and science education programs at the Department of Energy. This is because the Administration believes very strongly that the basic research programs at the DoE Office of Science are a higher leverage investment and in greater need of funding than new DoE programs, especially given the devastating impacts of last year's Omnibus appropriations bill on this agency.¹³

Rather than create ARPA-E or the Discovery Science and Engineering Innovation Institutes, the Secretary of Energy has issued a new policy on technology transfer,¹⁴ and proposes establishing 25-30 multi-investigator Energy Frontier Research Centers (EFRCs)¹⁵ at universities or other nonprofit organizations. As a result of the technology transfer policy, DOE will now reportedly pool funds from the Office of Science and other programs to fund six new collaborations that integrate

¹² (...continued)
by Deborah D. Stine.

¹³ Testimony of Dr. John Marburger, III, Director, White House Office of Science and Technology Policy, House Committee on Science and Technology, *Funding for the America COMPETES Act in the FY2009 Administration Budget Request*, hearing, 110th Congress, 2nd session, February 14, 2008 at [http://democrats.science.house.gov/Media/File/Commdocs/hearings/2008/Full/14feb/Marburger_Testimony.pdf].

¹⁴ See the press release at [<http://www.doe.gov/print/5977.htm>] and the policy statement at [http://www.doe.gov/media/Policy_Statement_on_Technology_Transfer.pdf]. The technology transfer policy states “This Policy Statement builds upon the stimulus provided by the technology transfer provisions contained in the Energy Policy Act of 2005 and other recent legislative actions such as the ‘America COMPETES Act’ that seek to improve the transfer of energy technologies from the Department’s Facilities to products and applications that address public and private needs.”

¹⁵ A footnote to Attachment 4 of Dr. Marburger’s testimony to the House Committee on Science and Technology Policy states that “[T]otal Budget funding for DoE research center partnerships similar to those in Section 5008 [the Discovery Science and Engineering Innovation Institutes] — Energy Frontier Research Centers, Bioenergy Research Centers, and SciDAC Institutes [Science Discovery Through Advanced Computing] — is \$183 million.” Testimony of Dr. John Marburger, III, Director, White House Office of Science and Technology Policy, House Committee on Science and Technology, *Funding for the America COMPETES Act in the FY2009 Administration Budget Request*, hearing, 110th Congress, 2nd session, February 14, 2008, at [http://democrats.science.house.gov/Media/File/Commdocs/hearings/2008/Full/14feb/Marburger_Testimony.pdf]. In additional e-mail correspondence on October 14, 2008, between CRS, OMB, and OSTP, OMB contends that the three organizations specified above respond to the authorization of the Discovery Science and Engineering Innovation Institutes in the act.

basic and applied research. Funding for these collaborations will reportedly be based on congressional language that requires DOE to set aside 0.9% of its applied energy research and development budget for technology transfer.¹⁶ The goal of EFRCs would be to focus on transformative research.¹⁷ The requested FY2009 EFRC budget is approximately \$100.0 million, with initial five-year awards of \$2.0-5.0 million annually per center. In contrast, each of the three Discovery Science and Engineering Innovation Institutes is authorized at \$10.0 million annually for a maximum of three years.

The act also authorizes the establishment of several new STEM education programs at the K-12 and post-secondary level within DOE. These activities include K-12 student and teacher programs such as specialty high schools for science and mathematics pilot program, experiential based learning opportunities (e.g., summer internships) for middle and high school students, and summer institutes for teachers. Post-secondary programs include a nuclear science talent expansion program and a hydrocarbon systems science talent expansion program to enhance existing and create new educational programs in nuclear science and hydrocarbon systems. In addition, the act establishes a new position within DOE to direct STEM education programs across the department, and a Science, Engineering, and Mathematics Education Fund, that is to include not less than 0.3% of DOE's research, development, and commercial application funding.

Although the relevant sections in the FY2009 DOE budget submission note the authorization of the America COMPETES Act, they do not make clear what specific educational programs within the act to which the request is responding.¹⁸ For example, the FY2009 request for the Office of Nuclear Energy references the America COMPETES Act and states it will designate 20% of its research funds for university research activities as a way to increase support for U.S. nuclear science and engineering education, but it does not cite the act's nuclear science talent expansion program.

In the section entitled "Workforce Development for Teachers and Scientists" in the Office of Science budget justification, DOE notes the America COMPETES

¹⁶ This may be a reference to the following provision in the Title X, Section 1001 of the Energy Policy Act (P.L. 109-58): "TECHNOLOGY COMMERCIALIZATION FUND. — The Secretary shall establish an Energy Technology Commercialization Fund, using 0.9 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application for each fiscal year, to be used to provide matching funds with private partners to promote promising energy technologies for commercial purposes."

¹⁷ For more details, see the FY2009 DOE Budget submission section entitled "FY 2009 Budget Request to Congress Errata sheet" at [http://www.er.doe.gov/obp/FY_09_Budget/Errata%20Sheet.pdf], and the DOE Energy Frontier Research Centers webpage at [<http://www.sc.doe.gov/bes/EFRC.html>].

¹⁸ Relevant DOE detailed budget justification addressing science is available on pp. 453-472 of volume 4 at [<http://www.cfo.doe.gov/budget/09budget/Content/Volumes/Volume4.pdf>] and the nuclear energy educational programs on pp. 621-626 of volume 3 at [<http://www.cfo.doe.gov/budget/09budget/Content/Volumes/Volume3a.pdf>].

Act and mentions many DOE STEM educational programs, but it does not identify any of them as either new America COMPETES Act initiatives or specify if some of the existing programs have been modified to accommodate the act. In addition, the DOE Office of Science does not mention the Early Career Awards for Science, Engineering, and Mathematics Researchers program.

In congressional testimony, however, the Administration has identified two DOE STEM education programs and the early career researcher program from the act as included in the FY2009 budget request.¹⁹ OMB contends that the following DOE programs correspond to programs authorized by the America COMPETES Act:

- Summer Institutes (§5003) corresponds to the pre-existing DOE Academies Creating Teacher Scientists program (DOE ACTS);
- Early Career Awards for Science, Engineering, and Mathematics Researchers (§5006) corresponds to pre-existing High Energy Physics Outstanding Junior Investigator, Nuclear Physics Outstanding Junior Investigator, Fusion Energy Sciences Plasma Physics Junior Faculty Development; Advanced Scientific Computing Research Early Career Principle Investigator; and the Office of Science Early Career Scientist and Engineer Award programs; and
- Protecting America's Competitive Edge (PACE) Graduate Fellowship Program (§5009) corresponds to pre-existing Computer Science Graduate Fellowships; Graduate Research Environmental Fellowships; American Meteorological Society/Industry/Government Graduate Fellowships; Spallation Neutron Source Instrumentation Fellowships, and the Fusion Energy Sciences Graduate Fellowships.²⁰

The DOE Summer Institutes authorization in the act is \$20 million in FY2009. Based on the information provided in DOE's budget request for the programs identified above, funding for these institutes is requested for \$6 million in FY2009. The Early Career Awards program is authorized for \$25 million in FY2009; the testimony states that FY2009 funding of \$10 million is requested for the programs specified above. For the PACE fellowships, DOE requests \$19 million, above the

¹⁹ Attachment 4 in Testimony of Dr. John Marburger, III, Director, White House Office of Science and Technology Policy, House Committee on Science and Technology, *Funding for the America COMPETES Act in the FY2009 Administration Budget Request*, hearing, 110th Congress, 2nd session, February 14, 2008 at [http://democrats.science.house.gov/Media/File/Commdocs/hearings/2008/Full/14feb/Marburger_Testimony.pdf].

²⁰ Email communication between CRS and the Office of Management and Budget and the Office of Science and Technology Policy received on October 14, 2008. According to OMB, the reason that the information above is not included in DOE's FY2009 budget request is that DOE did not reorganize its budget structure to match the America COMPETES Act categories.

act authorization level of \$12 million in FY2009, based on the programs listed above and the DOE budget request.²¹

Some of the COMPETES Act programs have additional requirements that may be beyond those that may be part of existing programs. For example, the America COMPETES Act's DOE summer institutes programs has prioritization criteria focused on teachers from a wide range of school districts, high-need school districts, and underrepresented groups; coordination and consultation requirements with DOE and NSF; and mentoring program, evaluation, and accountability plan requirements, which may or may not be an element of the existing DOE ACTS program.

The FY2009 budget request does not mention either establishing a DOE STEM Education fund or appointing a DOE STEM education program director.

Department of Education

The ED's mission is to "promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access."²² Among its activities, ED establishes policies on and distributes and monitors federal financial aid for education.²³

The America COMPETES Act authorizes the establishment of several new STEM education programs, including Teachers for a Competitive Tomorrow, the Advanced Placement and International Baccalaureate Program, Math Now, and the Advancing America Through Foreign Language Partnership Program.

Congress appropriated FY2008 funding for the Teachers for a Competitive Tomorrow program, which supports the development and implementation of higher education programs including a STEM baccalaureate degree with concurrent teacher certification, a part-time master's degrees in STEM or critical foreign languages for current teachers, and programs for professional scientists and engineers to pursue master's degrees that enable teacher certification. The FY2009 ED budget summary proposes to eliminate this program, indicating that these "activities can be funded under other Federal programs."²⁴

The FY2009 ED budget summary indicates that the America COMPETES Act's Advanced Placement and International Baccalaureate Program would provide a new vision for the existing ED Advanced Placement Incentive Program (API) authorized

²¹ Ibid.

²² U.S. Department of Education, "About ED," at [<http://www.ed.gov/about/landing.jhtml?src=gu>].

²³ For more information on STEM Education activities, see CRS Report 98-871, *Science, Engineering, and Mathematics Education: Status and Issues*, by Christine M. Matthews, and CRS Report RL33434, *Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action*, by Jeffrey J. Kuenzi.

²⁴ ED FY2009 Budget Summary, section on programs proposed for elimination at [<http://www.ed.gov/about/overview/budget/budget09/summary/edlite-section3.html>].

under Title I, Part G, of the Elementary and Secondary Education Act (ESEA). This new direction includes increasing access to classes and tests for low-income students, preparation of teachers in high-need schools, and non-federal organizations contributing funds to the program. The America COMPETES Act authorizes \$75.0 million for the Advanced Placement and International Baccalaureate Program in FY2009. The President's FY2009 budget requests \$70.0 million. Approximately \$22.0 million would support previously existing API activities, while approximately \$47.0 million would support America COMPETES Act activities.

The Math Now program is part of the President's ACI. The ED FY2009 budget summary proposes funding it at its full authorization level, \$95 million.

The Advancing America Through Foreign Language Partnership Program funds partnerships between higher education institutions and school districts to enhance postsecondary level language learning.²⁵ For this program, the act authorizes \$28.0 million in FY2008 and such sums as may be necessary for FY2009. The President's FY2009 budget requests \$24.0 million to support 24 new awards in languages such as Arabic, Chinese, Indic, Iranian, and Turkic. This program supports the President's National Security Language Initiative.

No funding is mentioned in the ED budget summary for the following America COMPETES Act authorized programs: the Summer Term Education Program, the P-16 Alignment of Secondary School Graduate Requirements with the Demands of 21st Century Postsecondary Endeavors and Support for P-16 Education Data Systems, or the Mathematics and Science Partnership Bonus Grants. As noted previously, this may or may not mean that the programs will be funded, as some are below the organizational level specified in the budget documents.

National Science Foundation

The NSF supports science and engineering in general and funds basic research across many disciplines by supporting investigator-initiated, merit-reviewed, competitively selected awards, state-of-the-art tools, and instrumentation and facilities, primarily at U.S. colleges and universities.²⁶

The America COMPETES Act authorizes \$5,742.0 million for NSF's research and related activities (R&RA) account. The President's FY2009 budget requests funding of \$5,594.0 million. In some cases, such as the Major Research Instrumentation (MRI) and Faculty Early Career Development (CAREER) programs, the requested levels are close to those authorized in the act. Other R&RA programs have been funded below the authorized levels, including the Experimental Programs to Stimulate Competitive Research (EPSCoR), which the President's budget requests

²⁵ The title for this program in the America COMPETES Act is the Foreign Language Partnership Program. The report uses the title for this program from the ED FY2009 congressional budget justification to help distinguish it from other ED foreign language programs such as the existing Foreign Language Assistance program.

²⁶ For more information on NSF, see CRS Report 95-307, *U.S. National Science Foundation: An Overview*, by Christine M. Matthews.

funding at \$113.5 million rather than the authorized level of \$133.2 million, and the Integrative Graduate Education and Research Traineeship (IGERT), for which the request is \$38.8 million rather than authorized level of \$52.5 million.

In the Education and Human Resources (EHR) directorate, the America COMPETES Act authorization is \$995.0 million, while the President's FY2009 budget requests \$790.0 million. Programs with requested funding well below that authorized include the Robert Noyce Teacher Scholarship program²⁷ (at \$11.6 million compared with an authorization of \$115.0 million) and the Mathematics and Science Education Partnership²⁸ (at \$51.0 million compared with an authorization of \$111.0 million). In contrast, the Graduate Research Fellowship (GRF) program is proposed for \$116.7 million, more than the authorization of \$107.2 million.

The two new NSF programs authorized in the America COMPETES Act have no funding requested for them. These are the Professional Science Master's Degree Program and the Laboratory Science Pilot Program. NSF has a working group that is looking at options, suggestions, and recommendations for implementation of the NSF-related provisions in the act.²⁹ Thus, a lack of funding for these new programs in the FY2009 budget should not be presumed to indicate a lack of interest in them as a final decision regarding these programs has not yet been made.

Congressional Activities

FY2008 appropriations met neither the Administration's ACI target nor America COMPETES Act authorized levels. An issue for Congress is whether FY2009 appropriations will. The White House's Office of Science and Technology Policy reports that the FY2009 budget request includes funding for America COMPETES Act initiatives at 88% of the FY2009 authorization level.³⁰

Congress' initial response to the President's budget request was to develop a budget resolution that sets the budget spending amounts for each functional category

²⁷ The Robert Noyce Teacher Scholarship program encourages science, technology, engineering, and mathematics majors and professionals to become K-12 mathematics and science teachers by providing funds to institutions of higher education to support scholarships, stipends, and programs for students who commit to teaching in high-need K-12 school districts.

²⁸ The Math and Science Partnership program provides grants to teams composed of institutions of higher education, local K-12 school systems, and their supporting partners to develop and implement pioneering ways of advancing mathematics and science education for students.

²⁹ Email from Teresa Davies, Director, Legislative Affairs, NSF, to Deborah Stine on February 13, 2008.

³⁰ Testimony of Dr. John Marburger, III, Director, White House Office of Science and Technology Policy, House Committee on Science and Technology, Funding for the America COMPETES Act in the FY2009 Administration Budget Request, hearing, 110th Congress, 2nd session, February 14, 2008, available at [http://democrats.science.house.gov/Media/File/Commdocs/hearings/2008/Full/14feb/Marburger_Testimony.pdf].

of the budget.³¹ The budget resolution did not allocate funds among specific programs or accounts. Major program assumptions underlying the functional amounts, however, are often discussed in the reports accompanying the resolution. These program assumptions and budget functions are not binding.³² In June 2008, the House and Senate approved the Conference Report on S.Con.Res. 70, The Concurrent Budget Resolution for 2009. Section 522 of the report provides a sense of the Congress on the Innovation Agenda and the America COMPETES Act, stating “the Congress should provide sufficient funding so that our Nation may continue to be the world leader in education, innovation and economic growth.” The resolution “supports the efforts authorized in the America COMPETES Act, providing substantially increased funding above the President’s requested level for 2009, and increased amounts after 2009 in Function 250 (General Science, Space and Technology) and other functions.” The resolution also states that “additional increases for scientific research and education are included in Function 270 (Energy), Function 300 (Environment and Natural Resources), Function 500 (Education, Employment, Training and Social Services), and Function 550 (Health), all of which receive more funding than the President’s budget provides.”

The budget resolution also included agreeing to an allocation to the House Committee on Appropriations and the Senate Committee on Appropriations. These committees then subdivided the amounts they received from the House and Senate Budget committees among the appropriations committees’ 12 subcommittees.³³ The committee’s jurisdictions³⁴ for the federal agencies that have programs authorized by the America COMPETES Act programs are divided among at least three Appropriations subcommittees:

- Commerce, Justice, Science, and Related Agencies: NSF, NIST, NASA, and OSTP;
- Energy and Water Development: DOE;
- Labor, Health and Human Services, Education, and Related Agencies: ED.

Each of these Senate and House Appropriations subcommittees have approved and reported the bills for which they are responsible, with an accompanying report,

³¹ CRS Report 97-684, *The Congressional Appropriations Process: An Introduction*, by Sandy Streeter.

³² CRS Report 98-721, *Introduction to the Federal Budget Process*, by Robert Keith. This process is set forth in the Congressional Budget Act, Titles I-IX of the Congressional Budget and Impoundment Control Act of 1974 (P.L. 93-344; July 12, 1974; 88 Stat. 297-339), as amended and codified at 2 U.S.C. 621-692.

³³ These allocations for FY2009 are available at [<http://www.cbo.gov/budget/approps/approps.pdf>]. For additional information on the appropriations process, see CRS Report 97-684, *The Congressional Appropriations Process: An Introduction*, by Sandy Streeter.

³⁴ It is important to note that the House and Senate Parliamentarians are the sole definitive authorities on questions relating to the jurisdiction of congressional committees and should be consulted for a formal opinion on any specific jurisdictional question.

to the full committee. The Senate Commerce, Justice, Science, and Related Agencies Appropriations Committee (S. 3182; S.Rept. 110-397), the Senate Energy and Water Development Appropriations Committee (S. 3258; S.Rept. 110-416), and the Senate Labor, Health and Human Services, Education, and Related Agencies (S. 3230; S.Rept. 110-410) have all reported their bills to the full Senate. The House Commerce, Justice, Science, and Related Agencies Appropriations Committee, and the House Energy and Water Development Appropriations Committee have reported their bills to the full House. The House Labor, Health and Human Services, Education, and Related Agencies has not yet reported its bill. At this time, the House Appropriations Committee bills and reports are available in draft form.

Table 1 summarizes the America COMPETES Act programs and authorizations for FY2008, FY2009, and FY2010; the FY2008 appropriation; and Senate and House activities regarding these programs in the FY2009 budget process.³⁵ Some highlights include

National Institute of Standards and Technology

- The Senate and House committees include funding for TIP authorized at \$541.9 million, and the MEP authorized at \$131.5 million. Both were proposed for elimination by the Administration.
- While the Administration requested \$535 million for STRS, authorized at \$541.9 million, the Senate committee approved \$489.5 million and the House committee \$500.7 million.

Department of Energy

- The DOE Office of Science authorized level is \$5.2 billion. The President requested \$4.7 billion. The Senate committee approved \$4.6 billion, and the House committee \$4.9 billion.
- The House committee approved \$15 million for ARPA-E, while the Senate committee does not include any funding. The President's FY2009 budget does not request an appropriation.

Department of Education

- The Senate committee recommended \$2 million for the Teachers for a Competitive Tomorrow program, while the House subcommittee does not provide any funding. The Administration requests its elimination in FY2009. The authorized level is \$125 million.
- The Senate committee supports the Administration's request to transition the existing Advanced Placement Incentive (API) program

³⁵ The table includes programs for which the America COMPETES Act authorized funding. Not all the programs addressed by the America COMPETES Act had an enumerated authorization of appropriation level. Further, not all of the authorized programs will necessarily be at a sufficient programmatic level to have a line item within their agency's budget in the President's request, the appropriations bills, or the agency budgets. Therefore, a lack of an enumerated appropriation does not necessarily mean that a given program is not funded.

to the new Advanced Placement and International Baccalaureate (AP/IB) program authorized by the America COMPETES Act. The Senate committee recommends \$43.5 million total, with \$20.5 million in funding for the act portion of the funding and the remainder to phase out the existing program. The House subcommittee also recommends \$43.5 million, but only for the existing API program. The subcommittee recommends not funding the America COMPETES Act AP/IB program, stating that the “2 to 1 match from non-Federal sources would preclude low-income schools from participating.”

- Both the Senate and House committee recommend Congress not fund two new programs authorized by the act, where the Administration requested funding: Math Now and the Advancing America Through Foreign Language Partnership Program.

National Science Foundation

- Both the Senate and House committees provide funding for NSF at the level requested by the Administration, \$6.9 billion. The authorized level is \$7.3 billion.
- The Senate committee reported \$55 million for the Robert Noyce Teacher Scholarship program, and the House committee \$50 million. The Administration requested \$11.6 million.

For FY2009, federal government programs related to the America COMPETES Act are funded from October 1, 2008, until March 6, 2009, through an interim continuing resolution (H.R. 2638; P.L. 110-329).³⁶ The resolution funds these programs at the FY2008 level, but does not include funding from the Supplemental Appropriations Act, 2008 (P.L. 110-252) in determining the level of funding during this time.³⁷ Funding for the remainder of FY2009 and all of FY2010 remains to be determined. This report will be updated on a regular basis as Congress takes action throughout the appropriations process.

³⁶ For more information, see CRS Report RL34700, *Interim Continuing Resolutions (CRs): Potential Impacts on Agency Operations*, by Clinton T. Brass.

³⁷ For additional details, see Office of Management and Budget, *Apportionment of the Continuing Resolution(s) for Fiscal Year 2009*, OMB Bulletin No. 08-02, September 30, 2008 at [<http://www.whitehouse.gov/omb/bulletins/fy2008/b08-02.pdf>].

Table 1. Comparison of America COMPETES Act Programs, the FY2008 Appropriation, and the President's FY2009 Budget Request, the House of Representatives FY2009 Appropriations, the Senate FY2009 Appropriations, and the America COMPETES Act FY2008, FY2009, and FY2010 Authorization
(in millions of dollars)

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
<i>Department of Commerce</i>							
National Institute of Standards and Technology (Sec. 3001)							
— Scientific & Technical Research and Services (STRS) (Sec. 3001)	\$502.1	\$440.5	\$541.9	\$535.0 ^a	** \$500.7	* \$489.5	\$584.8
— Construction & Maintenance (Sec. 3001)	150.9	160.5	86.4	99.0	** 129.0	* 149.0	49.7
— Technology Innovation Program (TIP) (Sec. 3001/3012)	100.0	65.2 ^b	131.5	0.0	** 65.2	* 65.0	140.5

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
— Manufacturing Extension Partnership (MEP) (Sec. 3001/3003)	110.0	89.6	122.0	4.0	** 89.6	* 110.0	131.8
<i>Department of Energy</i>							
DOE Science, Engineering and Mathematics Programs (Sec. 5003)							
— Pilot Program of Grants to Specialty Schools for Science and Mathematics (Sec. 5003) [NEW]	14.0	Not Included	22.5	Not Included	Not Included	Not Included	30.0
— Experiential Based Learning Opportunities (Sec. 5003) [NEW]	7.5	Not Included	7.5	Not Included	Not Included	Not Included	7.5
— Summer Institutes (Sec. 5003) [NEW] ^c	15.0	Not Included	20.0	6.4	**6.4	* 6.4	25.0
— National Energy Education Development (Sec. 5003) [NEW]	0.5	Not Included	Such sums as necessary	Not Included	Not Included	Not Included	Such sums as necessary

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Nuclear Science Talent Expansion Program (Sec. 5004)							
— Nuclear Science Program Expansion Grants for Institutions of Higher Education (Sec. 5004) [NEW]	3.5	Not Included	6.5	Not Included	Not Included	*3.0 ^d	9.5
— Nuclear Science Competitiveness Grants for Institutions of Higher Education (Sec. 5004) [NEW]	3.0	Not Included	5.5	Not Included	Not Included	Not Included	8.0
Hydrocarbon Systems Science Talent Expansion Program (Sec. 5005)							
— Hydrocarbon Systems Science Program Expansion Grants for Institutions of Higher Education (Sec. 5005) [NEW]	3.5	Not Included	6.5	Not Included	Not Included	Not Included	9.5

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
— Hydrocarbon Systems Science Competitiveness Grants for Institutions of Higher Education (Sec. 5005) [NEW]	3.0	Not Included	5.5	Not Included	Not Included	Not Included	8.0
Early Career Awards for Science, Engineering, and Mathematics Researchers (Sec. 5006)[NEW] ^c	25.0	Not Included	25.0	10.0	**10.0	* 10.0	25.0
Office of Science (Sec. 5007) (as act amends the Energy Policy Act of 2005 for FY2010)	4,486.0 ^e	4,035.6 (3,973.1 consolidated +62.5 supplemental)	5,200.0 ^e	4,721.9	**4,861.7	* 4,640.5	5,814.0
Discovery Science and Engineering Innovation Institutes (Sec. 5008) [NEW] ^c	10.0-30.0 ^f	Not Included	10.0-30.0 ^f	182.2	**182.2	* 82.2 ^g	10.0-30.0 ^f

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Protecting America's Edge (PACE) Graduate Fellowship Program (Sec. 5009)[NEW] ^c	7.5	Not Included	12.0	19.0	**19.0	* 19.0	20.0
Distinguished Scientist Program (Sec. 5011) [NEW]	15.0	Not Included	20.0	Not Included	Not Included	Not Included	30.0
Advanced Research Projects Agency — Energy [ARPA-E] (Sec. 5012) [NEW]	300	Not Included	Such sums as are necessary	Not Included	**15.0	Not Included	Such sums as are necessary
<i>Department of Education</i>							
Teachers for a Competitive Tomorrow: Baccalaureate Degrees in Science, Technology, Engineering, Mathematics, or Critical Foreign Languages, with Concurrent Teacher Certification (Sec. 6113, 6115, 6116) [NEW]	151.2	* 0.98	151.2	0.0	* 0.0	* 0.98	151.2

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Teachers for a Competitive Tomorrow: Master's Degrees in Science, Technology, Engineering, and Mathematics, or Critical Foreign Language Education (Sec. 6114-6116) [NEW]	125.0	* 0.98	125.0	0.0	** 0.0	* 0.98	125.0
Advanced Placement and International Baccalaureate Programs (Sec. 6121-6123) ^h [NEW]	75.0	Not Included	Such sums as may be necessary	70.0/47.0 ^h	** 43.5/0.0 ^h	*43.5/20.5 ^h	Such sums as may be necessary
Math Now (Sec. 6201) [NEW]	95.0	* 0.0	Such sums as may be necessary	95.0	**0.0 ⁱ	* 0.0 ⁱ	Such sums as may be necessary
Summer Term Education Programs (Sec. 6202) [NEW]	Such sums as may be necessary	Not Included	Such sums as may be necessary	Not Included	Not Included	Not Included	Such sums as may be necessary

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Math Skills for Secondary School Students (Sec. 6203) [NEW]	95.0	Not Included	95.0	Not Included	Not Included	Not Included	95.0
Advancing America Through Foreign Language Partnership Program (Sec. 6301-6304) [NEW] ^j	28.0	Not Included	Such sums as may be necessary	24.0	**0.0	* 0.0	Such sums as may be necessary
P-16 Alignment of Secondary School Graduate Requirements with the Demands of 21st Century Postsecondary Endeavors and Support for P-16 Education Data Systems (Sec. 6401) [NEW]	120.0	Not Included	Such sums as may be necessary	Not Included	Not Included	Not Included	Such sums as may be necessary
Mathematics and Science Partnership Bonus Grants (Sec. 6501) [NEW]	Such sums as may be necessary	Not Included	Such sums as may be necessary	Not Included	Not Included	Not Included	Such sums as may be necessary

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
<i>National Science Foundation</i> (Sec. 7002)	6,600.0	6,127.5 (6,065.0 consolidated +62.5 supplemental)	7,326.0	6,854.1	** 6,854.1	* 6,854.1	8,132.0
Research and Related Activities	5,156.0	4,844.0 ^k (4,821.5 consolidated +22.5 supplemental)	5,742.3	5,594.0	** 5,544.1	* 5,594.0	6,401.0
— Major Research Instrumentation (MRI) (Sec. 7002/Sec. 7036)	115.0	Not Included	123.1	115.0	Not Included	Not Included	131.7
— Faculty Early Career Development (CAREER) (Sec.7002)	165.4	Not Included	183.6	181.9	Not Included	Not Included	203.8
— Research Experiences for Undergraduates (REU) (Sec.7002)	61.6	Not Included	68.4	61.6	Not Included	Not Included	75.9

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
— Experimental Programs to Stimulate Competitive Research (EPSCoR) (Sec.7002)	120.0	* 120.0 (115.0 consolidated +5.0 ^l supplemental)	133.2	113.5	** 133.0	* 125.0	147.8
— Integrative Graduate Education and Research Traineeship/R&RA (IGERT) (Sec.7002) ^m	47.3	Not Included	52.5	38.8	Not Included	Not Included	58.3
— Graduate Research Fellowship/R&RA (GRF) (Sec.7002)	9.0	Not Included	10.0	8.1	Not Included	Not Included	11.1
— Professional Science Master's Degree Program (Sec. 7002/7034) [NEW]	10.0	Not Included	12.0	Not Included	Not Included	Not Included	15.0

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Education and Human Resources	896.0	765.6 (725.6 consolidated +40.0 supplemental)	995.0	790.4	** 840.3	* 790.4	1,104.0
— Mathematics and Science Education Partnership (MSP) (Sec.7002/7028)	100.0	Not Included	111.0	51.0	** 61.0	Not Included	123.2
— Robert Noyce Teacher Scholarship Program (Sec.7002/7030)	89.8	* 55.0 (15.0 consolidated +40.0 supplemental)	115.0	11.6	** 50.0 ^j	* 55.0 ⁿ	140.5
— Science, Mathematics, Engineering, and Technology Talent Expansion (Sec.7002/7025)	40.0	Not Included	50.0	29.7	Not Included	Not Included	55.0
— Advanced Technological Education (ATE) (Sec.7002)	52.0	Not Included	57.7	51.6	Not Included	Not Included	64.0

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
— Integrative Graduate Education and Research Traineeship/EHR (IGERT) (Sec.7002) ^m	27.1	Not Included	30.1	25.0	Not Included	Not Included	33.4
— Graduate Research Fellowship/EHR (GRF) (Sec.7002)	96.6	Not Included	107.2	116.7	**107.0	Not Included	119.0
Major Research Equipment and Facilities Construction (Sec.7002)	245.0	220.7	262.0	147.5	** 147.5	* 152.0	280.0
Agency Operations and Award Management (Sec.7002)	285.6	281.8	309.76	305.1	**305.1	* 300.6	329.45
National Science Board (Sec.7002)	4.05	3.97	4.19	4.0	**4.0	* 4.0	4.34
Inspector General (Sec.7002)	12.35	11.4	12.75	13.1	**13.1	* 13.1	13.21

Programs with Specific Authorized Budgets in the America COMPETES Act	FY2008		FY2009				FY2010
	Authorization (America COMPETES Act)	Appropriation (Consolidated Appropriations Act, 2008 (P.L. 110-161); Supplemental Appropriations Act, 2008 (P.L. 110-252))	Authorization (America COMPETES Act)	Request (President's Budget)	House Appropriation (as reported* or in draft bill or report**)	Senate Appropriation (as reported* or in draft bill or report**)	Authorization (America COMPETES Act)
Laboratory Science Pilot Program (Sec. 7026) [NEW]	5.0	Not Included	Such sums as may be necessary	Not Included	Not Included	Not Included	Such sums as may be necessary

Sources: America COMPETES Act (P.L. 110-69); For FY2008, information is from the Consolidated Appropriations Act, 2008 (P.L. 110-161) and joint explanatory statement; Congressional Record, December 17, 2007; Supplemental Appropriations Act, 2008 (P.L. 110-252); H.Rept. 110-240; S.Rept. 110-124; H.Rept. 110-231; and S.Rept. 110-107. The FY2009 request information is based on FY2009 Congressional Budget Request documents from the Department of Energy and the National Science Foundation. The Department of Education FY2009 information is based on its Budget Summary. The NIST FY2009 request information is from the *Fiscal Year 2009 Budget of the U.S. Government*. Senate Committee on Appropriations FY2009 information is from the Senate Commerce, Justice, Science, and Related Agencies Appropriations Committee (S. 3182; S.Rept. 110-397), the Senate Energy and Water Development Appropriations Committee (S. 3258; S.Rept. 110-416), and the Senate Labor, Health and Human Services, Education, and Related Agencies (S. 3230; S.Rept. 110-410), as reported to the full Senate. House Committee on Appropriations information is based on draft bills and subcommittee reports as provided on the Congressional Quarterly website as of July 18, 2008.

Notes: Section numbers refer to the America COMPETES Act. “[NEW]” means a program that was not authorized prior to the America COMPETES Act. “Not Included” means that these programs were not specifically identified in the budget request, bill, act, or report. * = as reported. ** = as in draft bill or report language. All other appropriations are numbers from bill language.

- a. The President’s budget request for STRS includes almost \$8 million for the Baldrige National Quality Award Program. The TIP/ATP program Senate appropriation does not include the \$30.8 million directed away from the ATP appropriation for use by other non-NIST related programs.
- b. The following statement is in the Consolidated Appropriations Act joint explanatory statement: “Of the amounts provided to ITS [Industrial Technology Services], \$65,200,000 is for the Technology Innovation Program as authorized by Public Law 110-69 [the America COMPETES Act]. TIP is structured to fund high-risk, high reward research focused on broad national needs such as advanced automotive batteries, aquaculture, novel lightweight materials, and other emerging technologies. The funding provided for TIP will address mortgage obligations relating to projects created under the Advanced Technology Program (ATP). The amended bill also includes language to allow the TIP immediate access to an additional \$5,000,000 from deobligations and prior-year recoveries from ATP.”

- c. According to an email communication between CRS and the Office of Management and Budget and the Office of Science and Technology Policy received on October 14, 2008, OMB contends that the following DOE programs correspond to programs authorized by the America COMPETES Act:
- DOE Summer Institutes (§5003) corresponds to the pre-existing DOE Academies Creating Teacher Scientists program (DOE ACTS);
 - DOE Early Career Awards (§5006) corresponds to pre-existing High Energy Physics Outstanding Junior Investigator, Nuclear Physics Outstanding Junior Investigator, Fusion Energy Sciences Plasma Physics Junior Faculty Development; Advanced Scientific Computing Research Early Career Principle Investigator; and the Office of Science Early Career Scientist and Engineer Award programs;
 - Discovery Science and Engineering Innovation Institutes (§5008) correspond with pre-existing Bioenergy Research Centers, SciDAC Institutes, and the proposed Energy Frontier Research Centers; and the
 - Protecting America's Competitive Edge (PACE) Fellowship program (§5009) corresponds to pre-existing Computer Science Graduate Fellowships; Graduate Research Environmental Fellowships; American Meteorological Society/Industry/Government Graduate Fellowships; Spallation Neutron Source Instrumentation Fellowships, and the Fusion Energy Sciences Graduate Fellowships.

Note that the information above is not included in DOE's FY2009 budget request as, according to OMB, DOE did not reorganize its budget structure to match the America COMPETES Act categories. The FY2009 budget request information provided in the table is from Attachment 4 in Testimony of Dr. John Marburger, III, Director, White House Office of Science and Technology Policy, House Committee on Science and Technology, Funding for the America COMPETES Act in the FY2009 Administration Budget Request, hearing, 110th Congress, 2nd session, February 14, 2008, at [http://democrats.science.house.gov/Media/File/CommDocs/hearings/2008/Full/14feb/Marburger_Testimony.pdf].

- d. The committee recommends this action as part of its congressionally directed science projects stating \$3 million should be appropriated for the Center for Advanced Energy Studies at Idaho National Laboratory in Idaho Falls "to conduct a pilot program to demonstrate the Nuclear Science Talent Expansion Program."
- e. The America COMPETES Act amends the Energy Policy Act of 2005 (P.L. 109-58), Section 971(b), for FY2010. The FY2008 and FY2009 authorization number provided here are from the Energy Policy Act.
- f. The Secretary of Energy can decide to establish up to three institutes per fiscal year. Each institute could receive \$10 million per year for three fiscal years.
- g. The Senate report did not specify an appropriation for the Energy Frontier Research Centers (ERFCs). The report did specify a reduction in the Office of Science Basic Energy Sciences funding of \$152.8 million. Of this decrease, the Senate directs \$59.4 million to move from the Office of Science to another office within DOE. According to OMB, DOE does not plan to fund the ERFCs in response to the remaining reduction of \$93.3 million. (Source: Personal communication between CRS and OMB on October 15, 2008.)
- h. There is a similarly-named existing ED program called the Advanced Placement Incentive Program (API), authorized under Title I, Part G of the Elementary and Secondary Education Act (ESEA). In its FY2009 congressional budget justification, the Department of Education proposes merging the ESEA API and the America COMPETES Advanced Placement and International Baccalaureate Program (AP/IB) to provide a new "vision" for API. The request states that, "Of the requested amount [\$70 million], roughly \$12 million would be required to fund State applications for the Test Fees Program and approximately \$11 million would fund API continuation grants under the ESEA program, leaving an estimated \$47 million for new grants under the COMPETES Act authority. Funds available for new awards will support projects expanding AP offerings and participation in mathematics, science, and critical languages." This is represented in the table as "70.0/47.0," with the first number in the table providing the total for both the existing Advanced Placement Incentive Program (API), and, if funded, the new America COMPETES Act Advanced Placement/International Baccalaureate (AP/IB) program; the second number is the Administration estimated portion of the total that would be used for the AP/IB program. A similar notation is used for the congressional recommendations and estimates. The Senate committee and House subcommittee both recommended \$43.5 million for this program, but the Senate committee recommended \$20.5 million for the AP/IB program, while the House subcommittee recommended not funding the COMPETES Act program stating that the "2 to 1 match from non-Federal sources would preclude low-income schools from participating."
- i. The House and Senate Committees on Appropriations each reported they did not wish to appropriate funds for this program.

- j. The title for this program in the America COMPETES Act is the Foreign Language Partnership Program. The table uses the title for this program from the ED FY2009 congressional budget justification to help distinguish it from other ED foreign language programs such as the existing Foreign Language Assistance program.
- k. The following statement is in the Consolidated Appropriations Act joint explanatory statement: “ The Appropriations Committees strongly support increases for the math and physical sciences, computer sciences, and engineering directorates in fiscal year 2008 for research and related activities (R&RA). However, the Committees also believe the Foundation should maintain comparable growth in fiscal year 2008, to the extent possible, for the biological sciences and social, behavioral and economic sciences directorates. Each of the science disciplines is valuable in maintaining U.S. competitiveness. The Committees urge NSF to provide each directorate with funding levels that are consistent with the goals of the America COMPETES Act and look forward to the Foundation’s operating plan in addressing these concerns.”
- l. Although included in the FY2008 supplemental appropriation, the act specifies a section in the America COMPETES Act authorizing funding for the FY2009 EPSCoR program.
- m. Two directorates of the National Science Foundation manage the Integrative Graduate Education and Research Traineeship (IGERT) program — the Education and Human Resources Directorate (EHR) and the Research and Related Activities (R&RA) directorate. The America COMPETES Act and the NSF budget request both identify the allocations for each directorate.
- n. The House subcommittee recommends \$20 million and the Senate committee recommends \$45 million of the appropriated funding for the Noyce program be used for the “National Science Foundation Teaching Fellowships and Master Teaching Fellowships” portion of the Robert Noyce Teacher Scholarship program. A description of this program is provided in the America COMPETES Act Section 7030, which amends the National Science Foundation Authorization Act of 2002 (P.L. 107-368), providing a new Section 10A.